

Grant Application

Montana Land Information Act

Fiscal Year 2010



APPLICANT INFORMATION

Applicant Name Gallatin County Geographic Information Systems Department

Principle Individual Allen Armstrong, GIS Manager

Agency Gallatin County Local Government

Mailing Address 311 W. Main Street, Courthouse, Rm. 305

City Bozeman

County Gallatin

State Montana

Zip 59715

Contact Email allen.armstrong@gallatin.mt.gov

Contact Fax (406) 582-3003

Contact Telephone (406) 582-3148 Ext. 91

Department Geographic Information Systems

PARTICIPATING PARTNER

Principle Contact William C. Grayson, Land Surveyor

Agency U.S.D.A. Bureau of Land Management

Mailing Address 5001 Southgate Drive, P.O. Box 36800

City Billings

County Yellowstone

State Montana

Zip 59107

Contact Email wgrayson@blm.gov

Contact Telephone (406) 896-5009

PARTICIPATING PARTNER

Principle Contact Stewart Kirkpatrick, GIS Bureau Chief

Agency MT DOA, Information Technology Services Division

Mailing Address Room 229, Mitchell Building, 125 North Roberts

City Helena

County Lewis and Clark

State Montana

Zip 59620

Contact Email skirkpatrick@mt.gov

Contact Telephone (406) 444-2700

PARTICIPATING PARTNER

Principle Contact Janet Kempff, USFS Surveyor

Agency US Department of Agriculture, Forest Service

Mailing Address Federal Building, PO Box 130

City Bozeman

County Gallatin

State Montana

Zip 59771

Contact Email jkempff@fs.fed.us

Contact Telephone (406) 587-6701

ADDITIONAL PARTICIPATING PARTNERS

Local Surveying Community

The Local Surveying Community will benefit from contracts with Gallatin County and available Public Land Survey System (PLSS) control data collected. Also, additional corner records will be filed and kept in the Clerk and Recorder's Office for future reference by the public and the Local Surveying Community.

DATE SUBMITTED

Date Submitted February 10, 2009

DATE RECEIVED

Date Received _____

DESCRIPTIVE TITLE OF PROJECT

Enhancement of the Bureau of Land Management's (BLM) Geographic Coordinate Data Base (GCDB) through Control Surveys, supplementing the Geodetic Control Theme as a means for adjusting the Cadastral Theme within Gallatin County, Montana and Southwestern Montana. This is proposed for completion in two Phases. The Phase I Geodetic Control Theme Project is a 5-year project already in progress and scheduled through Fiscal Year 2009. The Phase II Geodetic Control Theme Project is an additional 5-year project scheduled for Fiscal Year 2010 through Fiscal Year 2014.

PROJECT GOALS, OBJECTIVES AND RISKS

This project closely aligns with the following Goal and Objective of the 2010 Montana Land Information Plan:

Goal 1: *A statewide set of MSDI framework layers that are consistently collected, accurately maintained, and made commonly available.*

Objective 1.1: *Funding and administrative support for local, tribal, state and federal data collection efforts that will help develop and maintain multi-jurisdictional MSDI framework layers.*

To meet the purpose of the 2010 Montana Land Information Plan the following action items will take place:

- Advance the collection of the Geodetic Control Theme throughout Gallatin County, Montana
 - Collection of coordinate data for the BLM GCDB
 - Data collected by Registered Land Surveyors to preserve accuracy and integrity
 - Data collection standards strictly followed
 - Provides accuracy and certainty to business applications based on accurate land records
- Refine the accuracy of the Cadastral Theme for Federal, State, Local and Private interests
 - Provides a blueprint for other local governments to follow on similar projects
 - Will leverage an existing commitment of funds in Gallatin County
 - Continues forward with a proven process already active for 5 years in Gallatin County
- Establish collaborative partnerships between the GIS and Surveying Communities in Montana
 - Data made available to all users
 - Enhances the usefulness of GIS data to the non-GIS professional
 - Demonstrates the connectivity of Geodetic Control from local surveyors with GIS and Cadastral data
 - Process currently in place engaging local municipalities

In 1999 Gallatin County made the commitment to adjust our cadastral data to the adopted Montana standard GCDB control network. After numerous years of entering parcel data with Coordinate Geometry based on locally-collected GPS control, an adjustment was completed to the GCDB control framework. This change created one of the worst shifts of parcel data in Montana, shifting some areas of parcel data well in excess of 300 feet. It was clear at that time a long-term plan had to be developed to enhance the Geodetic Control Theme by working with the BLM in a joint GCDB Accuracy Enhancement Process.

Following the "Community GCDB Accuracy Enhancement Plan" developed by the BLM, a Pilot Project was completed in Fiscal Year 2004 which ran through the majority of tasks outlined in this proposal. The result was an outstanding success as far as adjusting areas of parcel data that were experiencing significant geographic shift. Each submittal of new control to the GCDB produces measurable benefits to the Cadastral Theme.

In addition to the 2004 Pilot Project which was completed to demonstrate feasibility of this project, Gallatin County has completed 4 years of our 5 year Phase I Geodetic Control Theme Project. The final year 5 is currently being scoped and scheduled for spring 2009 field work. Sustainability and commitment is most certainly being demonstrated within Gallatin County through internal momentum and budget allocation towards

the completion of this project through Fiscal Year 2014. Gallatin County GIS is also committed to maintaining our adjustments to the Cadastral Theme as new GCDB Control Surveys are completed and integrated into the Geodetic Control Theme. If this project fails to receive partnership MLIA funding, the internal momentum among involved departments and elected officials may drop to the point that internal funding is not approved.

Each Phase covers the entire county, minus some Federal Lands, in search of GCDB control points. Phase I, which is nearing completion, captured as much control as possible in the given project areas for that year and made adjustments to the GCDB control framework, with the overall intent of providing an adjustment to the Cadastral Theme. To maximize the number of control points collected, control points that already had existing corner record monuments filed with the Clerk and Recorder's Office, and appeared easiest to access were given highest priority during Phase I.

Phase II will look at the entire county again and target potential control points that may or may not have existing corner record monuments, and may be more difficult to locate in the field. These will be selected for their location critical to the refinement of GCDB control in a given geographic area. Phase II project work will collect less control points in number than Phase I; however, Phase II control points will likely be more difficult to collect but may weight more heavily in the control adjustment.

Phase II is planning to maximize our control point numbers by taking advantage of survey control data currently being managed by the USDA Forest Service. With over 40% of Gallatin County managed by the USDA Forest Service, the Forest Service data will contribute heavily to the GCDB adjustment in townships containing public lands. This kind of partnership will be generated at the local level by involving USFS Surveyors in the planning stages for each Phase II project.

The estimated result of these two Phases will be a Cadastral Theme that has a positional accuracy of 3-5 meters countywide. At the end of Phase II it will be determined whether there is a need for a Phase III, perhaps in selected geographic areas only. Gallatin County believes this project is very closely tied to the strategies of the 2010 Land Information Plan updating two MSDI Themes.

TECHNICAL APPROACH

Scope of Work

This Fiscal Year 2010 Project covers year 1 in the overall Phase II Geodetic Control Theme Project, which is part of a 5-year project plan in the overall 10 year life cycle. Townships covered under this project will include the following and will be referred to as the contracted townships collection areas:

T 1N R 3-4 E

T 1S R 4-6 E

T 2S R 5-6 E

Phase I project work selected contracted Registered Land Surveyors from a pre-qualified list of Surveying/Engineering firms derived from a Request for Qualifications. Because it has been five years since this Request for Qualification was advertised, Gallatin County GIS plans to continue fostering excellent working relationships with our local surveying community partners by issuing a new RFQ to establish a similar list for the remaining 5 years of this overall 10 year life cycle plan.

Deliverables

The following workflow is an established workflow that has been used in part for the Pilot Project in Fiscal Year 2004 and Phase I Fiscal Year 2005, 2006, 2007, 2008 and 2009 project work. The intent is to continue this workflow for deliverables throughout the 10 year life cycle of this overall project to accomplish the goals

described previously. The project tasks below list deliverables as they relate to Goal 1, Objective 1.1 of the 2010 Montana Land Information Plan.

Completed Deliverables

- Pre-Qualified list of contractors established from RFQ
(Pre-Qualified list to be update in spring 2009)
- Contractor Scope of Work and contract(s) established – Yearly

Deliverable 1 - Preliminary Mapping/Research

- Corner Records Maps and copies compiled for field review of each project-area township
- Previous survey points, USFS points, and existing BLM GCDB points compiled

Deliverable 2 - Control Collection Plan Determined

- 1st, 2nd and 3rd choice control point plan for the field
- This task will be involve more discussion with the BLM and local surveyors to optimize the GCDB by collecting critical and/or more difficult control

Deliverable 3 - Field Geodetic Control Surveying

- Performed by a Licensed Land Surveyor with Geodetic Control Processing to a certifiable accuracy of less than 1-meter
- Field notes and Corner Records established where applicable
- New corner records will be recorded with the Clerk and Recorder
- Standards and Guidelines for Cadastral Surveying will be followed
- Control will be submitted to BLM to incorporate into the state GCDB
- Control points will be entered into the State Survey and Mapping Control (SUMAC) database

Deliverable 4 - Adjustment of Gallatin County Cadastral Theme to the new GCDB

- Adjustment of Gallatin County parcel data
- Cadastral Theme update submittal to MT Department of Administration, GIS Bureau

Acceptance Criteria

Deliverable 1 – A representative from the Montana Department of Administration, GIS Bureau will travel to Gallatin County and review the preliminary mapping and research, which will include corner record research and maps documenting that research. Acceptance will be determined based on the GIS Bureau's previous experience with GCDB enhancement projects.

Deliverable 2 - The BLM will review and sign off on each township's collection plan.

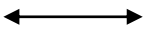
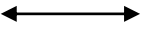



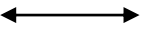


Deliverable 3 - Control Surveys submitted to BLM for review and acceptance by BLM staff. Field maps printed for BLM review and refinement. Refinement of deliverables will be made by Gallatin County, or Gallatin County's Contracted licensed land surveyor, per any BLM recommendations. GCDB geodetic control adjustment will be completed resulting in readjusted township PLSS data.

Deliverable 4 – Gallatin County's updated Cadastral Theme will be submitted to the GIS Bureau along with an assessment of the results obtained through adjustment. The GIS Bureau will accept the adjustment if 95% of identical GCDB and Cadastral line segments on section and township lines are coincident.

Timeline of Project

The Timeline for each Fiscal Year Project, within each Phase, has been and likely will continue to be the same barring any unforeseen weather situations. Although each Fiscal Year Control Survey overlaps calendar years, the Fiscal Year in which the first Task begins is considered the Fiscal Year for that Control Survey.

Enhancement of the Bureau of Land Management's (BLM) Geographic Coordinate Data Base (GCDB) through Control Surveys, Supplementing the Geodetic Control Theme As a means for adjusting the Cadastral Theme Within Gallatin County, Montana and Southwestern Montana

TASKS	CALENDAR					
	FISCAL YEAR 2010					
	July - August	September - October	November - December	January - February	March - April	May - June
Project: Deliverable 1						
Project: Deliverable 2						
Project: Deliverable 3						
Project: Deliverable 4						
Acceptance: Deliverable 1						
Acceptance: Deliverable 2						
Acceptance: Deliverable 3						
Acceptance: Deliverable 4						

Staff Roles and Responsibilities

Allen Armstrong, GIS Manager – Mr. Armstrong will oversee activities conducted on this project by staff of the GIS Department, develop the RFQ and contracts with Surveyors/Engineers, administer the project, manage budgets, submit status updates and prepare final deliverables submittal.

Frank Dougher, GIS Analyst – Mr. Dougher will be responsible for assisting with the control collection planning, coordinating with Surveyors, and assisting with the final deliverables. Mr. Dougher, together with Mr. Armstrong, will be making all adjustments to the Cadastral Theme before delivery to the Theme Steward.

GEOGRAPHY AFFECTED

GCDB Control Surveys throughout Gallatin County covered a total of 73 Townships during Phase I of the Geodetic Control Theme Project. In Phase II there are a total of 66 Townships that are planned for refined Control Surveys that will supplement Phase I data.

Illustrated in Figure 1 are the Townships with Control Surveys completed in Fiscal Year 2004 during a Pilot Project with the BLM. Only 9 Townships were covered during this Pilot Project with the result being 83 control points visited, collected by GPS surveying methods and incorporated into the GCDB control framework.

Figure 2 indicates the Townships in Gallatin County that were planned and covered during Phase I of the Geodetic Control Theme Project with the Control Survey areas colored by Fiscal Year. Fiscal Years 2005 and 2006 Townships have completed Control Surveys resulting in a total of 74 points collected. Fiscal Year 2007 was finished in the fall of 2007 and resulted in 84 control points. Fiscal Year 2008 Control Surveys completed in December 2008 collecting 140 control points, leaving only Fiscal Year 2009 to complete as part of Phase I.

Figure 3 displays the Phase II Geodetic Control Theme Project geographic areas that are proposed for Fiscal Years 2010 through 2014. Again, geographic areas are color coded by the Fiscal Years projected for the duration of this Phase. Geographic areas with the most development have proven to exhibit the largest Cadastral Theme errors in the past. The boundaries for the Phase II Geodetic Control Theme Project have been re-aligned to cover these areas more efficiently.

Jurisdictional areas impacted by this project include land administered by the Gallatin National Forest, BLM, National Park Service, State of Montana and Gallatin County, as well as the Municipalities of Bozeman, Belgrade, Manhattan, Three Forks and West Yellowstone. The Local Surveying Community (on-board with our plan), public users and all partners mentioned, receiving adjusted data on a regular on-going schedule will benefit applications, research and integrity of the GIS data.

BLM/Gallatin County Geodetic Control Pilot Project
Fiscal Year 2004

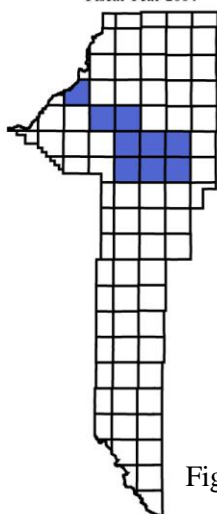


Figure 1.

Phase I Geodetic Control Theme Project
Gallatin County Townships by Fiscal Year Completed

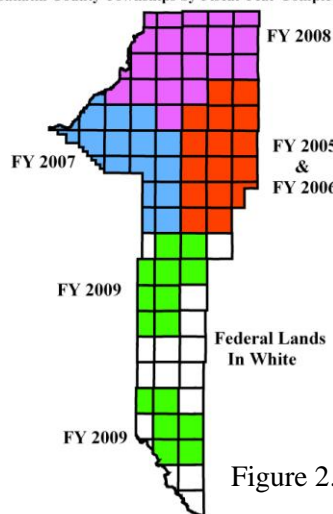


Figure 2.

Phase II Geodetic Control Theme Project
Gallatin County Townships by Fiscal Year Completed

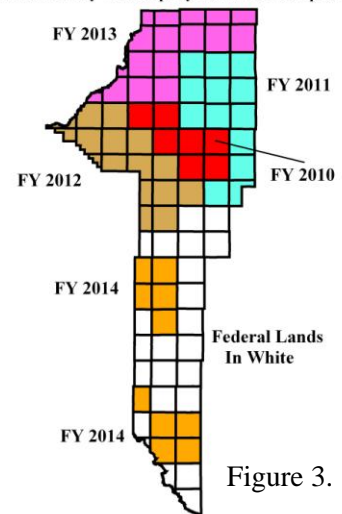


Figure 3.

Long-term benefits are numerous, but in summary, the following benefits can, at a minimum, be expected:

Overall accuracy enhancement of the Geodetic Control Theme with GCDB Control Surveys
Improvement in spatial accuracy of the Cadastral Theme tied to GCDB of the Geodetic Control Theme
Interagency data integration for applications
Information exchange across administrative boundaries

DETAILED BUDGET

Gallatin County has estimated 10 years for completion of Phase I and Phase II of this project. Project costs increased in Fiscal Year 2008 but are planned to be relatively consistent through Fiscal Year 2014. In-kind contributions consist of staff time and budgeted contract funds by Gallatin County. Costs associated with the project are mainly associated personnel needed to plan, research and review fieldwork, as well as the analytical GIS adjustment of the associated GIS layers. Current hourly rates for salaries and fringe benefits were adjusted upward by about 4% annually to account for the probable salaries that would be in effect at the time each forecasted project Phase begins. A detailed budget table by Fiscal Year showing the estimated costs for all categories is provided in this section.

Salaries and Wages: Personnel from the Gallatin County Geographic Information Systems Department will be the only staff required for these project phases.

Fringe Benefits: The amount assigned to fringe benefits is 28% of the salaries and wages of County employees. These include health and unemployment insurance, workers compensation, FICA & Medicare, and retirement.

Travel: No travel costs are anticipated. Travel costs by ITSD and BLM staff will be considered in-kind.

Equipment: No equipment costs are anticipated. Existing hardware/software will be utilized.

Supplies: Supplies include minor office incidentals and plotting supplies for field Survey plots.

Contracted Services: Professional contract services provided by Registered Land Surveyors will be paid for the Control Surveys. Contracts will be written and administered by Gallatin County based on a submitted Scope of Work with a not to exceed amount for time and materials.

Other: These costs include Gallatin County Grants Administration fees which are required by Gallatin County and calculated at 8.32% of the total grant funds. These funds will be paid to Grants by the GIS Department, and are being provided as matching funds. Having the Grants Department administer this project will ensure adequate grant reporting for Federal, State and Gallatin County administrative requirements.

FISCAL YEAR 2005/2006 ACTUAL BUDGET SUMMARY – PHASE I

Total Expended by Gallatin County = \$32,538.00

Total MLIA Share = \$0.00

FISCAL YEAR 2007 ACTUAL BUDGET SUMMARY – PHASE I

Total Expended by Gallatin County = \$32,636.00

Total MLIA Share = \$0.00

FISCAL YEAR 2008 ACTUAL BUDGET SUMMARY – PHASE I

Total Expended by Gallatin County = \$23,495.62

Estimated Remaining Gallatin County Expenses = \$1,532.00

Total Billed to MLIA = \$18,000.00

Total Remaining to Bill MLIA = \$2,000.00

FISCAL YEAR 2009 ACTUAL BUDGET SUMMARY – PHASE I

Total Expended by Gallatin County = \$2,012.00

Estimated Remaining Gallatin County Expenses = \$22,515.00

Total Billed to MLIA = \$0.00

Total Remaining to Bill MLIA = \$20,000.00

Total Billed to PARTNER-ITSD = \$0.00

Total Remaining to Bill PARTNER-ITSD = \$7,500.00

FISCAL YEAR 2010 ESTIMATED BUDGET SUMMARY FORM – PHASE II

CATEGORY	GALLATIN CNTY SHARE	MLIA SHARE	OTHER SHARE	TOTAL
1. SALARIES/WAGES	\$2,480	\$0	\$0	\$2,480
2. FRINGE BENEFITS	\$372	\$0	\$0	\$372
3. TRAVEL	\$0	\$0	\$0	\$0
4. EQUIPMENT	\$0	\$0	\$0	\$0
5. SUPPLIES	\$130	\$0	\$0	\$130
6. CONTRACTED	\$20,000	\$20,000	\$0	\$40,000
7. OTHER	\$1,664	\$0	\$0	\$1,664
TOTAL \$	\$24,646	\$20,000	\$0	\$44,646

FISCAL YEAR 2011 ESTIMATED BUDGET SUMMARY FORM – PHASE II

CATEGORY	GALLATIN CNTY SHARE	MLIA SHARE	OTHER SHARE	TOTAL
1. SALARIES/WAGES	\$2,580	\$0	\$0	\$2,580
2. FRINGE BENEFITS	\$387	\$0	\$0	\$387
3. TRAVEL	\$0	\$0	\$0	\$0
4. EQUIPMENT	\$0	\$0	\$0	\$0
5. SUPPLIES	\$140	\$0	\$0	\$140
6. CONTRACTED	\$20,000	\$20,000	\$0	\$40,000
7. OTHER	\$1,664	\$0	\$0	\$1,664
TOTAL \$	\$24,771	\$20,000	\$0	\$44,771

FISCAL YEAR 2012 ESTIMATED BUDGET SUMMARY FORM – PHASE II

CATEGORY	GALLATIN CNTY SHARE	MLIA SHARE	OTHER SHARE	TOTAL
1. SALARIES/WAGES	\$2,682	\$0	\$0	\$2,682
2. FRINGE BENEFITS	\$402	\$0	\$0	\$402
3. TRAVEL	\$0	\$0	\$0	\$0
4. EQUIPMENT	\$0	\$0	\$0	\$0
5. SUPPLIES	\$150	\$0	\$0	\$150
6. CONTRACTED	\$20,000	\$20,000	\$0	\$40,000
7. OTHER	\$1,664	\$0	\$0	\$1,664
TOTAL \$	\$24,898	\$20,000	\$0	\$44,898

FISCAL YEAR 2013 ESTIMATED BUDGET SUMMARY FORM – PHASE II

CATEGORY	GALLATIN CNTY SHARE	MLIA SHARE	OTHER SHARE	TOTAL
1. SALARIES/WAGES	\$2,790	\$0	\$0	\$2,790
2. FRINGE BENEFITS	\$419	\$0	\$0	\$419
3. TRAVEL	\$0	\$0	\$0	\$0
4. EQUIPMENT	\$0	\$0	\$0	\$0
5. SUPPLIES	\$160	\$0	\$0	\$160
6. CONTRACTED	\$20,000	\$20,000	\$0	\$40,000
7. OTHER	\$1,664	\$0	\$0	\$1,664
TOTAL \$	\$25,033	\$20,000	\$0	\$45,033

FISCAL YEAR 2014 ESTIMATED BUDGET SUMMARY FORM – PHASE II

CATEGORY	GALLATIN CNTY SHARE	MLIA SHARE	OTHER SHARE	TOTAL
1. SALARIES/WAGES	\$2,902	\$0	\$0	\$2,902
2. FRINGE BENEFITS	\$436	\$0	\$0	\$436
3. TRAVEL	\$0	\$0	\$0	\$0
4. EQUIPMENT	\$0	\$0	\$0	\$0
5. SUPPLIES	\$170	\$0	\$0	\$170
6. CONTRACTED	\$20,000	\$20,000	\$0	\$40,000
7. OTHER	\$1,664	\$0	\$0	\$1,664
TOTAL \$	\$25,172	\$20,000	\$0	\$45,172

RENEWABLE GRANT ACCOUNTABILITY REPORTS

AUTHORIZED SIGNATURE

I hereby certify that the information and all statements in this application are true, complete and accurate to the best of my knowledge and that the project or activity complies with all applicable state, local and federal laws and regulations.

I further certify that this project will comply with applicable statutory and regulatory standards.

I further certify that I am (we are) authorized to enter into a binding agreement with the Montana Department of Administration to obtain a grant if this application receives approval.

_____ Date _____

Signature and Title of Authorized Representative(s)
of Public Entity Applicant